

# Django 웹 애플리케이션 배포

Python 3.x 와 Django 2.x 로 개발한 웹 애플리케이션을 PCF Python buildpack 으로 배포할 때 기존 Django 애플리케이션에 필요한 수정내용과 manifest 작성

## Python 3.x & virtualenv & Django 2.x 설치하기

Mac 의 경우 기본 Python 2.7.x 가 시스템에 설치되어 있어, Python 3.x 설치시 'python3', 'pip3'와 같이 접미사 3 가 붙는다.

3.x Sample 을 잘 동작하기 위해서는 virtualenv 를 설치해서 사용한다.

참조: <http://devarea.com/building-a-simple-website-with-angular-4-and-django-and-deploy-it-to-heroku/#.WlnBAJP1V3Y>

### Python 3.x 설치

<https://www.python.org/downloads/mac-osx/> 에서 3.6.x 를 download 받아 설치.

```
$ python3
Python 3.6.4 (v3.6.4:d48ecebad5, Dec 18 2017, 21:07:28)
[GCC 4.2.1 (Apple Inc. build 5666) (dot 3)] on darwin
Type "help", "copyright", "credits" or "license" for more information.
>>>
```

```
$ which python3
/usr/local/bin/python3
```

### virtualenv 설치

```
# pip install virtualenv
```

### Python3 가상 공간 활성화

- 신규 디렉터리 만들기
- `virtualenv -p /usr/local/bin/python3 env` 실행
- 가상공간 활성화

```
coh:~/workspace/python $ mkdir jango1

coh:~/workspace/python $ cd jango1

coh:~/workspace/python/jango1 $ virtualenv -p /usr/local/bin/python3 env

Running virtualenv with interpreter /usr/local/bin/python3
Using base prefix '/Library/Frameworks/Python.framework/Versions/3.6'
New python executable in
/Users/coh/workspace/python/jango1/env/bin/python3
Also creating executable in
/Users/coh/workspace/python/jango1/env/bin/python
Installing setuptools, pip, wheel...done.

coh:~/workspace/python/jango1 $ source env/bin/activate
(env) coh:~/workspace/python/jango1 $

(env) coh:~/workspace/python/jango1 $ python

Python 3.6.4 (v3.6.4:d48eceb5, Dec 18 2017, 21:07:28)
[GCC 4.2.1 (Apple Inc. build 5666) (dot 3)] on darwin
Type "help", "copyright", "credits" or "license" for more information.
```

## Django 설치

작성한 가상 공간에서 작업한다. 작업 전에 항상 `env/bin/activate` 를 실행한다.

```
coh:~/workspace/python/jango1 $ source env/bin/activate

(env) coh:~/workspace/python/jango1 $ pip install django
Collecting django
  Using cached Django-2.0.1-py3-none-any.whl
Collecting pytz (from django)
  Using cached pytz-2017.3-py2.py3-none-any.whl
Installing collected packages: pytz, django
Successfully installed django-2.0.1 pytz-2017.3
```

## Django 버전 확인

```
(env) coh:~/workspace/python/jango1 $ python -c "import django;
print(django.get_version())"
2.0.1
```

## Django Sample 웹 애플리케이션 만들기

### App 프로젝트 만들기: jangoweb1

```
(env) coh:~/workspace/python/jango1 $ django-admin startproject jangoweb1
(env) coh:~/workspace/python/jango1 $
(env) coh:~/workspace/python/jango1 $ cd jangoweb1/

(env) coh:~/workspace/python/jango1/jangoweb1 $ ls -lR
total 8
drwxr-xr-x  6 coh  staff  204 Jan 14 22:13 jangoweb1
-rwxr-xr-x  1 coh  staff  541 Jan 14 22:13 manage.py

./jangoweb1:
total 24
-rw-r--r--  1 coh  staff    0 Jan 14 22:13 __init__.py
-rw-r--r--  1 coh  staff 3097 Jan 14 22:13 settings.py
-rw-r--r--  1 coh  staff  751 Jan 14 22:13 urls.py
-rw-r--r--  1 coh  staff  395 Jan 14 22:13 wsgi.py
(env) coh:~/workspace/python/jango1/jangoweb1 $
```

### App Module 만들기

```
(env) coh:~/workspace/python/jango1/jangoweb1 $ python manage.py startapp app1

(env) coh:~/workspace/python/jango1/jangoweb1 $ ls -lR app1
total 40
-rw-r--r--  1 coh  staff    0 Jan 14 22:19 __init__.py
-rw-r--r--  1 coh  staff  63 Jan 14 22:19 admin.py
-rw-r--r--  1 coh  staff  83 Jan 14 22:19 apps.py
drwxr-xr-x  3 coh  staff 102 Jan 14 22:19 migrations
-rw-r--r--  1 coh  staff  57 Jan 14 22:19 models.py
-rw-r--r--  1 coh  staff  60 Jan 14 22:19 tests.py
-rw-r--r--  1 coh  staff  63 Jan 14 22:19 views.py

app1/migrations:
total 0
-rw-r--r--  1 coh  staff    0 Jan 14 22:19 __init__.py
```

### App Project 에 등록하기

[jangoweb1/settings.py](#)

```
# Application definition

INSTALLED_APPS = [
    'django.contrib.admin',
    'django.contrib.auth',
    'django.contrib.contenttypes',
    'django.contrib.sessions',
    'django.contrib.messages',
    'django.contrib.staticfiles',
    'app1',
]
```

## Add migration so you can change your database schema easily:

```
(env) coh:~/workspace/python/jango1/jangoweb1 $ python manage.py migrate
```

Operations to perform:

Apply all migrations: admin, auth, contenttypes, sessions

Running migrations:

```
Applying contenttypes.0001_initial... OK
Applying auth.0001_initial... OK
Applying admin.0001_initial... OK
Applying admin.0002_logentry_remove_auto_add... OK
Applying contenttypes.0002_remove_content_type_name... OK
Applying auth.0002_alter_permission_name_max_length... OK
Applying auth.0003_alter_user_email_max_length... OK
Applying auth.0004_alter_user_username_opts... OK
Applying auth.0005_alter_user_last_login_null... OK
Applying auth.0006_require_contenttypes_0002... OK
Applying auth.0007_alter_validators_add_error_messages... OK
Applying auth.0008_alter_user_username_max_length... OK
Applying auth.0009_alter_user_last_name_max_length... OK
Applying sessions.0001_initial... OK
```

## App 실행 및 확인

### localhost:8000 확인

```
(env) coh:~/workspace/python/jango1/jangoweb1 $ python manage.py runserver
Performing system checks...
```

System check identified no issues (0 silenced).

January 14, 2018 - 13:33:14

Django version 2.0.1, using settings 'jangoweb1.settings'

Starting development server at http://127.0.0.1:8000/

Quit the server with CONTROL-C.



The install worked successfully! Congratulations!

You are seeing this page because `DEBUG=True` is in your settings file and you have not configured any URLs.

## PCF 에 배포하기

- pip 로 dependency 설치하기
- Project settings.py 에 static 파일 관련 설정
- Project settings.py 에 미들웨어 리스트 수정
- Project settings.py 에 도메인 명 추가 또는 \* 추가
- runtime.txt 파일 만들기
- Procfile 파일 만들기
- requirements.txt 파일 만들기
- cf push

### Dependency 설치하기

```
(env) coh:~/workspace/python/jango1/jangoweb1 $ pip install gunicorn
Collecting gunicorn
  Using cached gunicorn-19.7.1-py2.py3-none-any.whl
Installing collected packages: gunicorn
Successfully installed gunicorn-19.7.1
```

```
(env) coh:~/workspace/python/jango1/jangoweb1 $ pip install whitenoise
Collecting whitenoise
  Using cached whitenoise-3.3.1-py2.py3-none-any.whl
Installing collected packages: whitenoise
Successfully installed whitenoise-3.3.1
```

```
(env) coh:~/workspace/python/jango1/jangoweb1 $ pip freeze
Django==2.0.1
gunicorn==19.7.1
pytz==2017.3
whitenoise==3.3.1
```

### Static 관련 settings.py 에 static 관련 설정 추가

```
STATIC_URL = '/static/'
PROJECT_ROOT = os.path.dirname(os.path.abspath(__file__))
```

```
STATIC_ROOT = os.path.join(PROJECT_ROOT, 'staticfiles')

# Simplified static file serving.
# https://warehouse.python.org/project/whitenoise/

STATICFILES_STORAGE = 'whitenoise.django.GzipManifestStaticFilesStorage'
```

Static 관련 `settings.py` 에 MIDDLEWARE 관련 설정 추가

'whitenoise.middleware.WhiteNoiseMiddleware'를 첫번째 라인에 추가

```
MIDDLEWARE = [
    'whitenoise.middleware.WhiteNoiseMiddleware',
    'django.middleware.security.SecurityMiddleware',
    'django.contrib.sessions.middleware.SessionMiddleware',
    'django.middleware.common.CommonMiddleware',
    'django.middleware.csrf.CsrfViewMiddleware',
    'django.contrib.auth.middleware.AuthenticationMiddleware',
    'django.contrib.messages.middleware.MessageMiddleware',
    'django.middleware.clickjacking.XFrameOptionsMiddleware',
]
```

Allow Host 추가

jangweb1/settings.py

```
ALLOWED_HOSTS = ['*']
```

runtime.txt 파일 만들기

```
(env) coh:~/workspace/python/jango1/jangoweb1 $ cat runtime.txt
python-3.6.x
```

Procfile 파일 만들기

```
(env) coh:~/workspace/coinone/jango1/jangoweb1 $ cat Procfile
```

```
web: gunicorn jangoweb1.wsgi --log-file -
```

## requirements.txt 파일 만들기

```
(env) coh:~/workspace/python/jangol/jangoweb1 $ pip freeze > requirements.txt
```

```
(env) coh:~/workspace/python/jangol/jangoweb1 $ cat requirements.txt
Django==2.0.1
gunicorn==19.7.1
pytz==2017.3
whitenoise==3.3.1
```

## PWS 에 배포하기

애플리케이션 이름은 중복되지 않도록 본인 이름 suffix 를 붙여서 push 한다.

cf push jango-coh

```
(env) coh:~/workspace/coinone/django/jangoweb1 $ cf push jangol
Creating app jangol in org coh-org / space development as coh@pivotal.io...
OK
```

```
Creating route jangol.cfapps.io...
OK
```

```
Binding jangol.cfapps.io to jangol...
OK
```

```
Uploading jangol...
Uploading app files from: /Users/coh/workspace/coinone/django/jangoweb1
Uploading 15.8K, 36 files
Done uploading
OK
```

```
Starting app jangol in org coh-org / space development as coh@pivotal.io...
Downloading binary_buildpack...
Downloaded ruby_buildpack
Downloaded nodejs_buildpack
Downloading staticfile_buildpack...
Downloading nodejs_buildpack...
Downloading java_buildpack...
Downloading ruby_buildpack...
Downloaded dotnet_core_buildpack_beta
Downloaded python_buildpack
Creating container
Downloading php_buildpack...
Downloaded java_buildpack
Downloading go_buildpack...
Downloaded php_buildpack
Downloading python_buildpack...
```



```
Downloaded go_buildpack
Downloading dotnet_core_buildpack...
Downloading dotnet_core_buildpack_beta...
Downloaded binary_buildpack
Downloaded staticfile_buildpack
Downloaded dotnet_core_buildpack
Successfully created container
Downloading app package...
Downloaded app package (14.5K)
-----> Python Buildpack version 1.6.6
-----> Supplying Python
-----> Installing python 3.6.3
      Copy
[/tmp/buildpacks/14bbc09e51d69eb803b00ea72c4bd8dd/dependencies/9969ef0136a09d
e6ed8c422f9dcaa344/python-3.6.3-linux-x64-eld8ecd1.tgz]
-----> Installing setuptools 38.2.4
      Copy
[/tmp/buildpacks/14bbc09e51d69eb803b00ea72c4bd8dd/dependencies/96b4be1c835138
2dc097667ec02c254d/setuptools-38.2.4-9c671a62.zip]
-----> Installing pip 9.0.1
      Copy
[/tmp/buildpacks/14bbc09e51d69eb803b00ea72c4bd8dd/dependencies/8a019cf0880a8d
3ed97f1606c308ee61/pip-9.0.1-35f01da3.tar.gz]
-----> Installing pip-pop 0.1.1
      Copy
[/tmp/buildpacks/14bbc09e51d69eb803b00ea72c4bd8dd/dependencies/ee6dcba05f1775
3b4c10c2ab872711d6/pip-pop-0.1.1-d410583a.tar.gz]
-----> Installing pipenv 9.0.1
      Copy
[/tmp/buildpacks/14bbc09e51d69eb803b00ea72c4bd8dd/dependencies/f58a91495a1929
741413bc5ebb30355a/pipenv-v9.0.1-256667ff.tgz]
-----> Running Pip Install
      Collecting Django==2.0.1 (from -r
/tmp/contents668859240/deps/0/requirements.txt (line 1))
      Downloading Django-2.0.1-py3-none-any.whl (7.1MB)
      Collecting gunicorn==19.7.1 (from -r
/tmp/contents668859240/deps/0/requirements.txt (line 2))
      Downloading gunicorn-19.7.1-py2.py3-none-any.whl (111kB)
      Collecting pytz==2017.3 (from -r
/tmp/contents668859240/deps/0/requirements.txt (line 3))
      Downloading pytz-2017.3-py2.py3-none-any.whl (511kB)
      Collecting whitenoise==3.3.1 (from -r
/tmp/contents668859240/deps/0/requirements.txt (line 4))
      Downloading whitenoise-3.3.1-py2.py3-none-any.whl
      Installing collected packages: pytz, Django, gunicorn, whitenoise
      Successfully installed Django-2.0.1 gunicorn-19.7.1 pytz-2017.3
whitenoise-3.3.1
      Running python /tmp/app/manage.py collectstatic --noinput --traceback
118 static files copied to '/tmp/app/jangoweb1/staticfiles', 144 post-
processed.
Exit status 0
Uploading droplet, build artifacts cache...
Uploading build artifacts cache...
Uploading droplet...
Uploaded build artifacts cache (7.1M)
Uploaded droplet (62.3M)
Uploading complete
```

Stopping instance ed5f8201-c187-4390-a722-5cb14889f892  
Destroying container  
Successfully destroyed container

1 of 1 instances running

App started

OK

App jangol was started using this command `gunicorn jangoweb1.wsgi --log-file  
-`

Showing health and status for app jangol in org coh-org / space development  
as coh@pivotal.io...

OK

requested state: started  
instances: 1/1  
usage: 1G x 1 instances  
urls: jangol.cfapps.io  
last uploaded: Wed Jan 17 07:32:49 UTC 2018  
stack: cflinuxfs2  
buildpack: python

	state	since	cpu	memory	disk
details					
#0	running	2018-01-17 04:34:11 PM	5.0%	39.9M of 1G	227.5M of 1G